Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application. The following listing provides the amended claims with the amendments marked with deleted material crossed out and new material underlined to show the changes made.

1. (Previously Presented) A method of quantizing digital video information, said method comprising:

determining a buffer occupancy accumulator as a difference between an actual amount of bits used and a requested amount of bits;

limiting an amount of change in said buffer occupancy accumulator based upon frame properties; and

encoding said digital video information using a quantizer value computed based on said buffer occupancy accumulator.

2. (Previously Presented) The method of quantizing digital video information as claimed in claim 1, wherein said frame properties comprise a frame type.

3. (Previously Presented) The method of quantizing digital video information as claimed in claim 1, wherein said limiting an amount of change in said buffer occupancy accumulator is performed by clipping said buffer occupancy accumulator.

4. (Previously Presented) The method of quantizing digital video information as claimed in claim 1, wherein said limiting an amount of change in said buffer occupancy accumulator is performed by scaling said buffer occupancy accumulator.

5. (Previously Presented) A method of quantizing digital video information, said method comprising:

determining a base quantizer value;

determining a quantizer adjustment based upon frame properties; and

encoding said digital video information based on a quantizer value computed as a sum of the base quantizer value and the quantizer adjustment.

6. (Previously Presented) The method of quantizing digital video information as claimed in claim 5, wherein said frame properties comprise a frame type.

7. (Previously Presented) The method of quantizing digital video information as claimed in claim 5, wherein said quantizer adjustment is further based upon a macroblock position.

8. (Previously Presented) The method of quantizing digital video information as claimed in claim 5, wherein said quantizer adjustment is further based bits per pixel of a current frame.

9. (Previously Presented) The method of quantizing digital video information as claimed in claim 5, wherein said quantizer adjustment is further based on a difference between a number of bits actually used and a number of bits that should have been used.

10. (Previously Presented) The method of quantizing digital video information as claimed in claim 9, wherein said number of bits that should have been used is calculated in a manner that takes into account macroblock types.

11. (Previously Presented) The method of quantizing digital video information as claimed in claim 5, wherein said quantizer adjustment is further based on a Normalized Sum of Absolute Differences (NSAD).

12. (Previously Presented) The method of quantizing digital video information as claimed in claim 5, wherein said quantizer adjustment is further based on a macroblock activity measure normalization (mbactN).

13. (Previously Presented) The method of quantizing digital video information as claimed in claim 5, wherein determining a base quantizer value comprises clipping said base quantizer value to produce an adaptively determined finite range.

14. (Previously Presented) A method of determining a quantizer for quantizing digital video information, said method comprising:

determining a delta value comprising a difference between a number of bits actually used and a number of bits that should have been used, wherein said number of bits that should have been used is dependent upon a frame type;

quantizing said digital video information using a quantizer value computed based on said delta value.

15. (Original) The method of determining a quantizer as claimed in claim 14 wherein said number of bits that should have been used comprises using different calculations for Intra-macroblocks and Inter-macroblocks.

16. (Previously Presented) A computer readable medium storing a computer program executable by at least one processor, the computer program comprising sets of instructions for:

determining a buffer occupancy accumulator as a difference between an actual amount of bits used and a requested amount of bits;

limiting an amount of change in said buffer occupancy accumulator based upon frame properties; and

encoding said digital video information using a quantizer value computed based on said buffer occupancy accumulator.

17. (Previously Presented) The computer readable medium as claimed in claim 16, wherein said frame properties comprise a frame type.

18. (Original) The computer readable medium as claimed in claim 16 wherein said limiting an amount of change in said buffer occupancy accumulator is performed by clipping said buffer occupancy accumulator.

19. (Original) The computer readable medium as claimed in claim 16 wherein said limiting an amount of change in said buffer occupancy accumulator is performed by scaling said buffer occupancy accumulator.

20. (Previously Presented) A computer readable medium storing a computer program executable by at least one processor, the computer program for implementing a video encoder, the computer program comprising sets of instructions for:

determining a base quantizer value;

determining a quantizer adjustment based upon frame properties; and

encoding said digital video information based on a quantizer value computed as a sum of the base quantizer value and the quantizer adjustment.

21. (Original) The computer readable medium as claimed in claim 20 wherein said frame properties comprise a frame type.

22. (Original) The computer readable medium as claimed in claim 20 wherein said quantizer adjustment is further based upon a macroblock position.

23. (Original) The computer readable medium as claimed in claim 20 wherein said quantizer adjustment is further based bits per pixel of a current frame.

24. (Original) The computer readable medium as claimed in claim 20 wherein said quantizer adjustment is further based on scaling factor multiplied by a difference between a number of bits actually used and a number of bits that should have been used.

25. (Original) The computer readable medium as claimed in claim 24 wherein said number of bits that should have been used is calculated in a manner that takes into account macroblock types.

26. (Original) The computer readable medium as claimed in claim 20 wherein said quantizer adjustment is further based on a Normalized Sum of Absolute Differences (NSAD).

27. (Original) The computer readable medium as claimed in claim 20 wherein said quantizer adjustment is further based on a macroblock activity measure normalization (mbactN).

28. (Previously Presented) The computer readable medium as claimed in claim 20, wherein the sets of instructions for determining a base quantizer value comprises a set of instructions for clipping said base quantizer value to produce an adaptively determined finite range.

29. (Previously Presented) A computer readable medium storing a computer program executable by at least one processor, the computer program for determining a quantizer value for quantizing digital information, the computer program comprising sets of instructions for:

determining a delta value comprising a difference between a number of bits actually used and a number of bits that should have been used, wherein said number of bits that should have been used is dependent upon a frame type; and

quantizing said digital video information using a quantizer value computed based on said delta value.

30. (Previously Presented) The computer readable medium as claimed in claim 29, wherein said number of bits that should have been used comprises using different calculations for Intra-macroblocks and Inter-macroblocks.

31. (Currently Amended) The computer readable medium as claimed in claim 29, wherein the frame type is one of an intra-frame encoded and an inter-frame encoded.

32. (Currently Amended) The method as claimed in claim 2, wherein the frame type is one of an intra-frame encoded and an inter-frame encoded.

33. (Currently Amended) The method as claimed in claim 6, wherein the frame type is one of an intra-frame encoded and an inter-frame encoded.

34. (Currently Amended) The method as claimed in claim 14, wherein the frame type is one of an intra-frame encoded and an inter-frame encoded.

35. (Currently Amended) The computer readable medium as claimed in claim 17, wherein the frame type is one of an intra-frame encoded and an inter-frame encoded.

36. (Currently Amended) The computer readable medium as claimed in claim 21, wherein the frame type is one of an intra-frame encoded and an inter-frame encoded.